U.S. Serial No.: 09/482,235
Docket No. 26068-05E

Examiner: Brenda Coleman
Art Unit: 1624

LISTING OF CLAIMS

Claims 1-2: (Canceled)

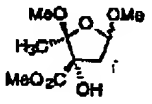
3. (Currently amended) A process according to claim ~~26~~ 29 wherein said preparation is carried out in the presence of a Bronstead acid or a Lewis acid.

4. (Original) A process according to claim 3 wherein the acid is selected from the group consisting of camphor sulfonic acid, *para*-toluene sulfonic acid, and $BF_3 \bullet Et_2O$.

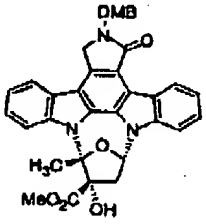
5. (Original) A process according to claim 4 wherein camphor sulfonic acid is used as a catalyst and dichloroethane is used as a solvent.

Claims 6-7: (Cancelled)

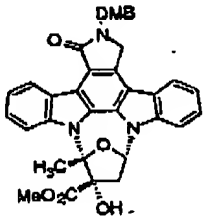
8. (Currently amended) A process according to claim ~~26~~ 28 wherein the acetal is a furanose of the formula



and is reacted with DMB-protected K252c to give two products of the formulae



and



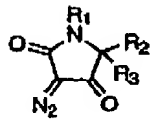
9. (Currently amended) A product prepared according to the process of claim ~~26~~ 28.

10. (Previously presented) A product prepared according to the process of claim 3.

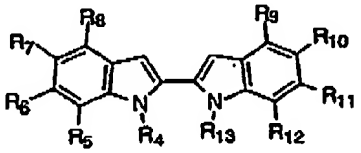
11. (Currently amended) A process according to claim ~~26~~ 29 wherein the furanosylated indolocarbazole prepared is K252a.

12. (Canceled).

13. (Currently amended) A process according to claim ~~26~~ 28 wherein the indolocarbazole is prepared by reacting a diazo compound having the ring structure



with a biindole having the ring structure



14. (Original) A process according to claim 13 wherein the reaction is carried out in the presence of a transition metal catalyst in a solvent capable of solvating the reactants.

15. (Original) A process according to claim 13 wherein the coupling reaction is carried out in the presence of a $Rh_2(OAc)_4$ catalyst.

16. (Previously presented) A process according to claim 13 wherein the diazo compound is a diazolactam and the biindole is a 2,2'-biindole.

Claims 17-18: (Canceled)

19. (Currently amended) A process according to claim ~~27~~ 30 wherein the furanosylated indolocarbazole prepared is K252a.

20. (Currently amended) A product produced by the process of claim ~~27~~ 30.

21. (Currently amended) A process according to claim ~~26~~ 28 wherein the indolocarbazole is reacted with an acetal under conditions that promote acetal exchange.

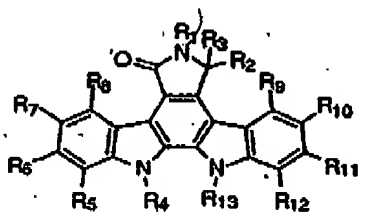
22. (Previously presented) A process according to claim 3 wherein the preparation is carried out in the presence of a Lewis acid.

23. (Currently amended) A process according to claim ~~27~~ 30 wherein the biindole is a 2,2' – biindole.

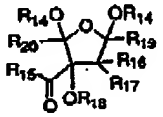
24. (Currently amended) A process according to claim ~~27~~ 30 wherein a Lewis acid is employed.

Claims 25-27. (Canceled)

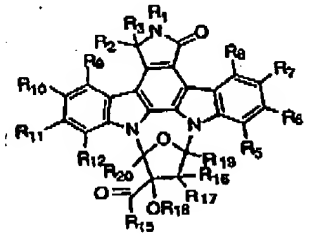
Claim 28. (New) A process for the preparation of furanosylated indolocarbazoles by reacting an indolocarbazole having the ring structure



with an acetal having the structure



under conditions that promote acetal exchange or formation to produce a furanosylated product having the ring structure



wherein:

R_1 is selected from the group consisting of 3,4-DMB, PMB, Bn, and t-Bu;

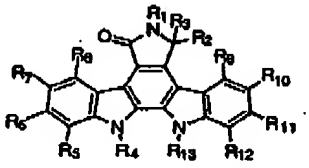
R_2-R_4, R_6-R_{13}, and R_{16}-R_{19} are hydrogen;

R_5 is hydrogen;

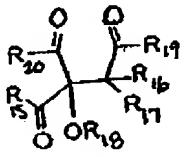
R_{14} and R_{20} are CH_3, and

R_{15} is OCH_3.

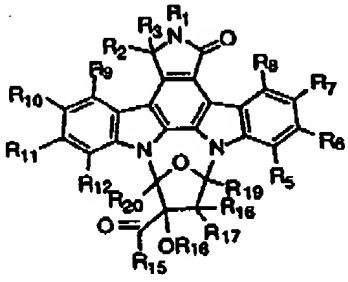
Claim 29. (New) A process for the preparation of furanosylated indolocarbazoles by reacting an indolocarbazole having the ring structure



with an acetal having the structure



under conditions that promote acetal exchange or formation to produce a furanosylated product having the ring structure



wherein:

R_1 is selected from the group consisting of 3,4-DMB, PMB, Bn, and t-Bu;

R_2-R_7, R_9-R_{13}, and R_{16}-R_{17} are hydrogen;

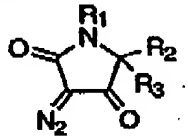
R_5 is CH_3 or hydrogen;

R_{14} and R_{20} are CH_3, and

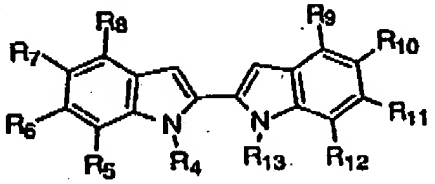
R_{15} is OCH_3.

Claim 30. (New) A process for the preparation of furanosylated indolocarbazoles comprising:

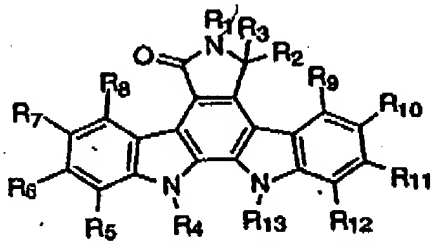
reacting a diazo compound having the ring structure



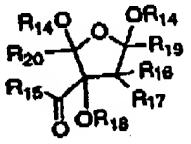
with a biindole having the ring structure



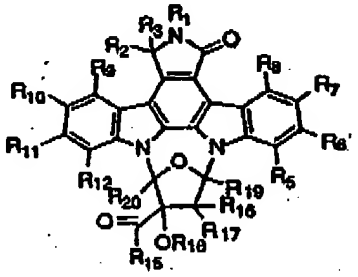
in the presence of a transition metal catalyst in a solvent capable of solvating the reactants, to produce an indolocarbazole having the ring structure



and then reacting the indolocarbazole with an acetal having the structure



to produce a furanosylated product having the ring structure



wherein:

R_1 is selected from the group consisting of 3,4-DMB, PMB, Bn, and t-Bu;

R_2-R_4, R_6-R_{13}, and R_{16}-R_{19} are hydrogen;

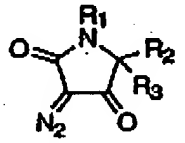
R_5 is hydrogen;

R_{14} and R_{20} are CH_3, and

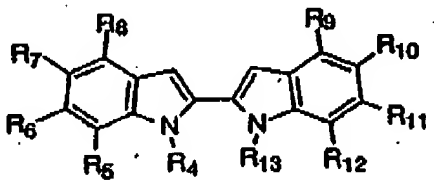
R_{15} is OCH_3.

Claim 31. (New) A process for the preparation of furanosylated indolocarbazoles comprising:

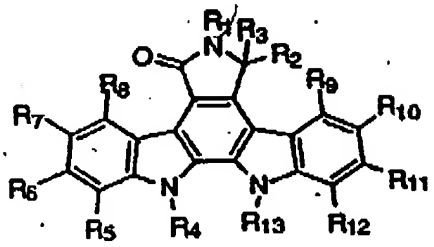
reacting a diazo compound having the ring structure



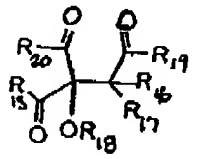
with a biindole having the ring structure



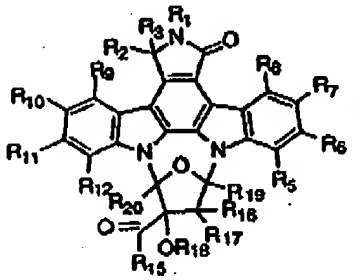
in the presence of a transition metal catalyst in a solvent capable of solvating the reactants, to produce an indolocarbazole having the ring structure



and then reacting the indolocarbazole with an acetal having the structure



to produce a furanosylated product having the ring structure



wherein:

R_1 is selected from the group consisting of 3,4-DMB, PMB, Bn, and t-Bu;

R_2-R_4, R_6-R_{13}, and R_{16}-R_{19} are hydrogen;

R_5 is CH_3 or hydrogen;

R_{14} and R_{20} are CH_3, and

R_{15} is OCH_3.

Claim 32. (New) A process according to claim 28 wherein said preparation is carried out in the presence of a Bronstead acid or a Lewis acid.

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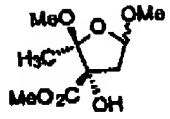
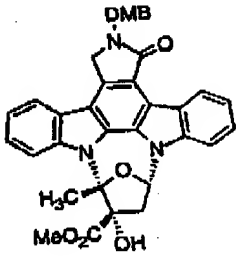
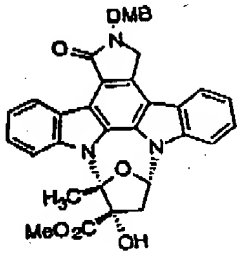
Claim 33. (New) A process according to claim 29 wherein the acetal is a furanose of the formula



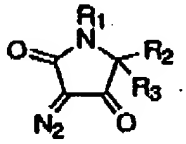
and is reacted with DMB-protected K252c to give two products of the formulae



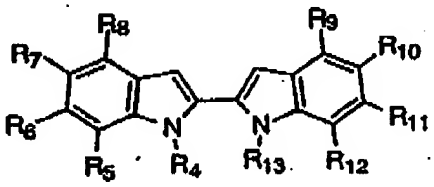
and



Claim 34. (New) A process according to claim 29 wherein the indolocarbazole is prepared by reacting a diazo compound having the ring structure



with a biindole having the ring structure



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Claim 35. (New) A process according to claim 34 wherein the reaction is carried out in the presence of a transition metal catalyst in a solvent capable of solvating the reactants.

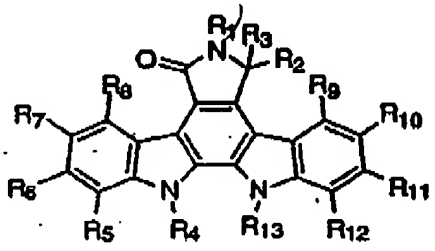
Claim 36. (New) A process according to claim 34 wherein the coupling reaction is carried out in the presence of a $Rh_2(OAc)_4$ catalyst.

Claim 37. (New) A process according to claim 34 wherein the diazo compound is a diazolactam and the biindole is a 2,2'-biindole.

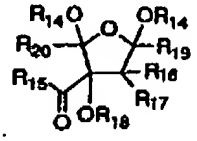
Claim 38. (New) A process according to claim 31 wherein the biindole is a 2,2' – biindole.

Claim 39. (New) A process according to claim 31 wherein a Lewis acid is employed.

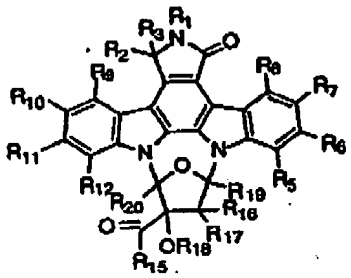
Claim 40. (New) A process for the preparation of furanosylated indolocarbazoles by reacting an indolocarbazole having the ring structure



with an acetal having the structure



under conditions that promote acetal exchange or formation to produce a furanosylated product having the ring structure



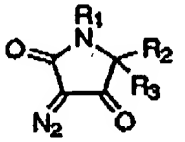
wherein:

R_1-R_{19} are selected from the group consisting of unsaturated, branched, linear or cyclic alkyl, heteroalkyl, aryl, and heteroaryl groups; and mixtures of the foregoing, wherein hetero refers to O, S, N, or P; and

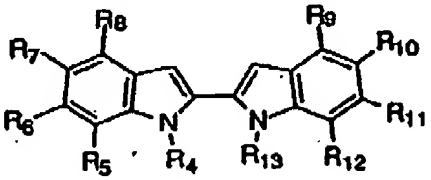
R_{20} is CH_3.

Claim 41. (New) A process for the preparation of furanosylated indolocarbazoles comprising:

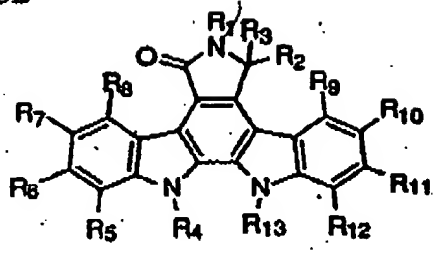
reacting a diazo compound having the ring structure



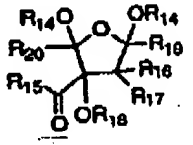
with a biindole having the ring structure



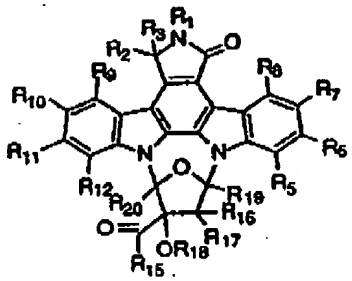
in the presence of a transition metal catalyst in a solvent capable of solvating the reactants, to produce an indolocarbazole having the ring structure



and then reacting the indolocarbazole with an acetal having the structure



to produce a furanosylated product having the ring structure



wherein:

R_1-R_{19} are selected from the group consisting of unsaturated, branched, linear or cyclic alkyl, heteroalkyl, aryl, and heteroaryl groups; and mixtures of the foregoing, wherein hetero refers to O, S, N, or P; and

R_{20} is CH_3.